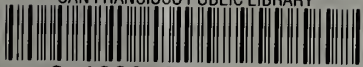


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I Transit History of San Francisco

-- the background of our present transit needs

II Future of San Francisco Transit - The CTP Study

-- the need for high-speed mass transit

-- the market for mass transit in San Francisco

III Today's Muni and Fast Transit

-- how the Muni got this way

IV Proposition B - Fast Transit Now

-- details, people served, costs, cost and the
tax rate, bond pay-out

V The Comprehensive Transit Plan -- Proposition B

-- use of Federal funds

-- details

VI Benefits of Fast Transit for San Francisco: To Sum Up

I: TRANSIT HISTORY OF SAN FRANCISCO

A recent study suggests that, except for the gold and silver rushes of 1850-70, the wartime job rush a century later, and the development of the Marina from the 1915 Exposition's grounds,

"The city's pattern of growth over the years has been established by the level of public transportation service available..."¹

Walled in by hills on the West, San Francisco first grew southward along the easy Mission grades toward the county line until, in 1873, Andrew Hallidie's cable cars opened the western slopes of Nob Hill. Further settlement to the West followed the early steam trains to Cliff House and a branch of the San Francisco and San Mateo Railroad Company's electric line that was run out 18th, Clayton, and Waller to Golden Gate Park in 1891.

The city became fairly closely settled over its whole area only when the San Miguel Hills were breached by the Twin Peaks Tunnel in 1918 and the Sunset Tunnel in 1928, creating the soon-populous Parkside, Ingleside and Sunset districts.

San Francisco was well served by the public surface transit which had done so much to create it until, some 20 years ago, automobile congestion clogged street car rights of way and held even the more agile bus fleet down to a speed which was much below that of the general flow of traffic. Indeed, in 1964, a Municipal Railway report had to note that, in spite of swifter and more capable equipment in service and no substantial increase in population in the areas most affected, there had been no increase in the average speed of transit to outlying areas of San Francisco in 40 years!

Efforts to move large numbers of people by automobiles and freeways were less than successful. Freeways simply bred more auto traffic and fed it into the city streets at peak hours. Their net result was to make a trip to a suburban home by automobile little, if any, longer than a trip to the main residential districts of San Francisco by streetcars or buses fighting streams of automobile commuters who had come in on the freeways.

The result of this competition between mass transit and our heavily subsidized individual transit system is well known. Like other large American cities with the same problem, San Francisco found itself as losing population and feared even greater losses, to the point where the City's tax base might be seriously impaired.

"The level of public transportation service available" referred to earlier was, as before, determining "the City's pattern of growth"--this time negatively, by transferring it to the suburbs. The other major Bay Area

¹Kaiser Engineers, Summary Report, prepared for the PUC, 1966

cities had exactly the same problem, and, in 1962 by a vote of over 61%, they helped create a Bay Area Rapid Transit District (BARTD) which, through roadways separated from other traffic, would make public transit faster, safer, more comfortable, and hence more desirable than movements by private automobile.

BARTD, the Municipal Railway and the Alameda-Contra Costa Transit District recognized early that the very existence of a swift regional mass transportation system could accelerate, rather than retard, the loss of population from city to suburb, unless each large city served set up an efficient mass transportation system of its own within that city to make sure that residents could reach their homes more quickly than BARTD's trains could carry them to more remote points. In 1964 they set up the Northern California Transit Demonstration Project

"....to determine the coordination required for a regional system involving BARTD, the San Francisco Municipal Railway, and the Alameda-Contra Costa Transit District, by the three principals with the aid of a grant by the Department of Housing and Urban Development" (Kaiser report)

The Project engaged the leading firm of transit engineers, Simpson and Curtin of Philadelphia, for a 1-1/2-year survey of the problems and potentials of public transit within each major city in BARTD. It was felt by the Project staff that San Francisco's problem of coordination with BARTD was the most acute of all.

The city was, so to speak, on the western rim of the great BARTD wheel about the Bay, and no more than a quarter of its people could take advantage of BARTD service: Therefore, unless a really fast transit system were developed here, the city would lose population to communities as remote as Orinda, Lafayette, Walnut Creek and Concord, which would be 20 minutes closer to downtown San Francisco at peak hours than the outer Richmond, Sunset, Parkside and Ingleside districts now are by the best Municipal Railway service available.

So, in a gratifying display of intercity cooperation, the other elements of BARTD unanimously voted to give San Francisco first call on Simpson and Curtin's services, wholly deferring their own surveys until the completion of San Francisco's.

The present report summarizes the conclusions of the Simpson and Curtin study, which was aimed at laying out a Comprehensive Transit Plan that would take a passenger from any point in San Francisco to any other point in San Francisco in no more than 20 minutes transit riding time, the figure determined as necessary to give San Francisco a competitive advantage as a place to live, for those who work in San Francisco, over the nearest point on any BARTD line outside of San Francisco.

II: FUTURE OF SAN FRANCISCO TRANSIT -- THE CTP STUDY

The Simpson and Curtin study, hereinafter referred to as "the CTP study" for (Comprehensive Transit Plan), was to determine (1) whether there was a need for high-speed mass transit within San Francisco to coordinate with and supplement BARTD's transit to and from San Francisco, (2) whether there was an effective demand, an economic "market," for such transit in the city, (3) whether San Francisco's present fleet of cars and buses could be adapted to serve this need, (4) what routes fast transit should follow, (5) how much such a Comprehensive Transit Plan would cost and (6) how it should be financed.

THE NEED FOR HIGH SPEED MASS TRANSIT

The CTP study, begun on May 1, 1965, and completed, by intensive use of sophisticated computer equipment, early this spring, points up a fact often ignored in appeals for high speed public transit: that the lack of such transit is just as important to those who will not use it as it is to those who now suffer the inconvenience of sitting or standing for long periods in our present slow-moving public transit on traffic-clogged streets.

"Today's traffic in downtown San Francisco moves at an average speed of about 7 or 8 miles per hour....the only positive way to raise auto speeds is to improve public transportation speeds and attractiveness. Then the individual who must drive his car will find the streets and highways free of those who can use rapid transit or bus service...."

"The surest cure for traffic congestion in San Francisco is better public transportation."

The origins of our present congested traffic are traced:

"For the past two decades, the Muni system has been neglected and allowed to atrophy physically, while public attention and funds have been devoted to enlarging automobile access to downtown San Francisco and the parking spaces within it.

"As personal incomes go up, people are trying to improve their commuting conditions just as they are raising living standards in other parts of their lives. They cannot achieve this on streetcars or buses (where there has been no improvement in service in the past 50 years), so they switch to autos. Because public transportation is poor, people are using their increased income to buy better and faster transportation by car. The motive is commendable, even if the solution isn't.

"Today's traffic in downtown San Francisco moves at an average speed of about 7 or 8 miles an hour. On Bay crossings and approach routes to the downtown area from Peninsula communities, as well as arterial routes from the southern and western sections of the city proper, average rush-hour speeds of 12 to 15 miles per hour prevail. These travel speeds have not improved significantly in the last 35 years, despite billions of dollars that have gone into Bay crossings and highway improvements.

"Whenever an improved highway or Bay crossing to downtown San Francisco raises the average speed of auto travel, the tremendous pent-up demand for better transportation quickly pours more cars into the area to take advantage of the improvement. These added cars then slow traffic until it is once more just about as slow as public transportation. Then people again see no great advantage in using their automobiles and a new equilibrium is achieved with fewer public transportation riders (than there were before) and more motorists, both traveling at the same speed as they were before the improvement."

This is clearly a vicious cycle: each time it occurs, there are fewer public transport riders and income from fares goes down, leaving no alternatives except heavier and heavier subsidization of worsened public transportation from the general tax rate on the one hand and, on the other, creating a demand for insanely expensive and wholly self-defeating schemes for easier access by private automobile.

"All of the present access streets, highways and Bay crossings leading into downtown San Francisco would have to be doubled in size and these extra lanes used exclusively for cars, in order to duplicate the delivery job which Muni vehicles are performing for the central business district. The next question is: where would you park them if total delivery were by auto?

"Downtown San Francisco is fast approaching the limit to the number of vehicles that can enter the area during home-to-work rush periods or that can circulate in downtown during the day. No significant increase in auto capacity can be provided without using more street and parking space and thereby diluting downtown's purpose--to bring more people close together.

"Nor can any more capacity be provided on approach highways to alleviate rush-hour congestion, except at enormous expense and disruption of heavily built-up residential neighborhoods."

The future of the city's vast downtown business area, hub of the whole American West, must depend on effective mass transit.

"The value of downtown concentration is evident in the amount of building construction and the increase in office space in recent years (and in plans for the years ahead).

"This concentration applies to time as well as to space; there is little point in building offices close together if people are not going to fill them at the same hours. And if people are going to work together, they have to travel to and from work at the same time.

"Therefore, transportation in downtown San Francisco must be economical of both time and space. The city's policies should aim at channeling the effective demand for better transportation into more space-saving modes--rapid transit, buses; commuter

trains and pedestrian aids such as escalators and speedwalks.

"The city has to assure good transportation to make the most of the continuing attraction of downtown San Francisco for office, retail and cultural activities."

THE MARKET FOR MASS TRANSIT IN SAN FRANCISCO

The already existing "market" for mass transit in San Francisco is enormous and firmly based:

"Muni vehicles carry 133,000 persons into and through downtown San Francisco every weekday.

"San Franciscans depend more upon public transportation for local travel than citizens of any other major city in the U.S. except New York. The per capita use of transit in San Francisco is 40% higher than in Chicago, 50% higher than in Washington, 70% higher than in Philadelphia and more than double the usage in Atlanta; yet each of these other cities already have or are actively developing rapid transit networks for their local citizenry.

"Seventy-one per cent of Muni riders are wage earners. This is why streetcars and buses are crowded in peak hours.

"The Muni system carries staggering peak loads during rush periods -- 57,000 workers and shoppers are carried outbound from the downtown area by Muni streetcars and buses between 4:30 and 6:00 P.M. This is more than twice the combined capacities of the Bayshore Freeway, Bay Bridge and Golden Gate Bridge."

Yet the real customer potential for public transport has scarcely been tapped, the CTP study shows. From its June, 1965, analysis of riding habits (when 175,000 riders were asked questions on destination, car ownership, riding habits--the largest sample ever taken by a transit system anywhere) and its review of prior studies, these conclusions are reached:

"There is every evidence that employees and shoppers will use space-saving public transportation if reasonable standards of speed, frequency of service and comfort are provided. It is important that more attention--and more money--be given to the amenities of travel if transit is to be made competitive with autos. First, we must speed up the transit trip. And, in addition to that, we must make rapid transit travel a pleasant experience. This applies to comfortable seating, cleanliness, good lighting, ventilation, modern appearance, courteous treatment and other elements contributing to passenger accommodation and comfort.

"Motorists favor relief by rapid transit....A few years ago, FORTUNE MAGAZINE conducted a poll among auto commuters in three major metropolitan areas--San Francisco, Los Angeles and Washington, D.C.--to determine how they liked driving to work, and on what terms they would consider switching to a 'first class rapid transit system' if one were built in their city.

"A surprising number indicated they were getting fed up with driving, and would--with reasonable inducement--switch to public transit,' the business magazine found out.

"San Francisco had the highest proportion of motorists willing to switch. Seventy-eight per cent of local auto drivers would seriously consider the change, and one-half of these are ready to switch if the rapid transit service comes reasonably close to competing with auto travel in time, cost and convenience.

"Another noteworthy fact from the poll is that 90% of rush-hour motorists in San Francisco could use public transportation to commute to work; they now elect to drive because transit service is slow and unattractive. This is more than double the potential market for transit switchovers in Los Angeles.

"When it came to the motorists' opinion on the best solution on transportation and traffic problems, San Franciscans voted overwhelmingly in favor of 'new public rapid transit system.' Local motorists favoring rapid transit were 78%, compared with 22% advocating new highways and expressways. Here again, the local preference for rapid transit was substantially greater than in Los Angeles or Washington.

"More than two-thirds of local rush-hour motorists indicated that they would use rapid transit if the round-trip travel time matched their present driving time. This poll clearly demonstrates the capacity of rapid transit to cure this city's traffic congestion problems.

"Stated simply and succinctly, what this city needs is a rapid transit network that will permit everyone to reach downtown from any corner of the city in 20 minutes."

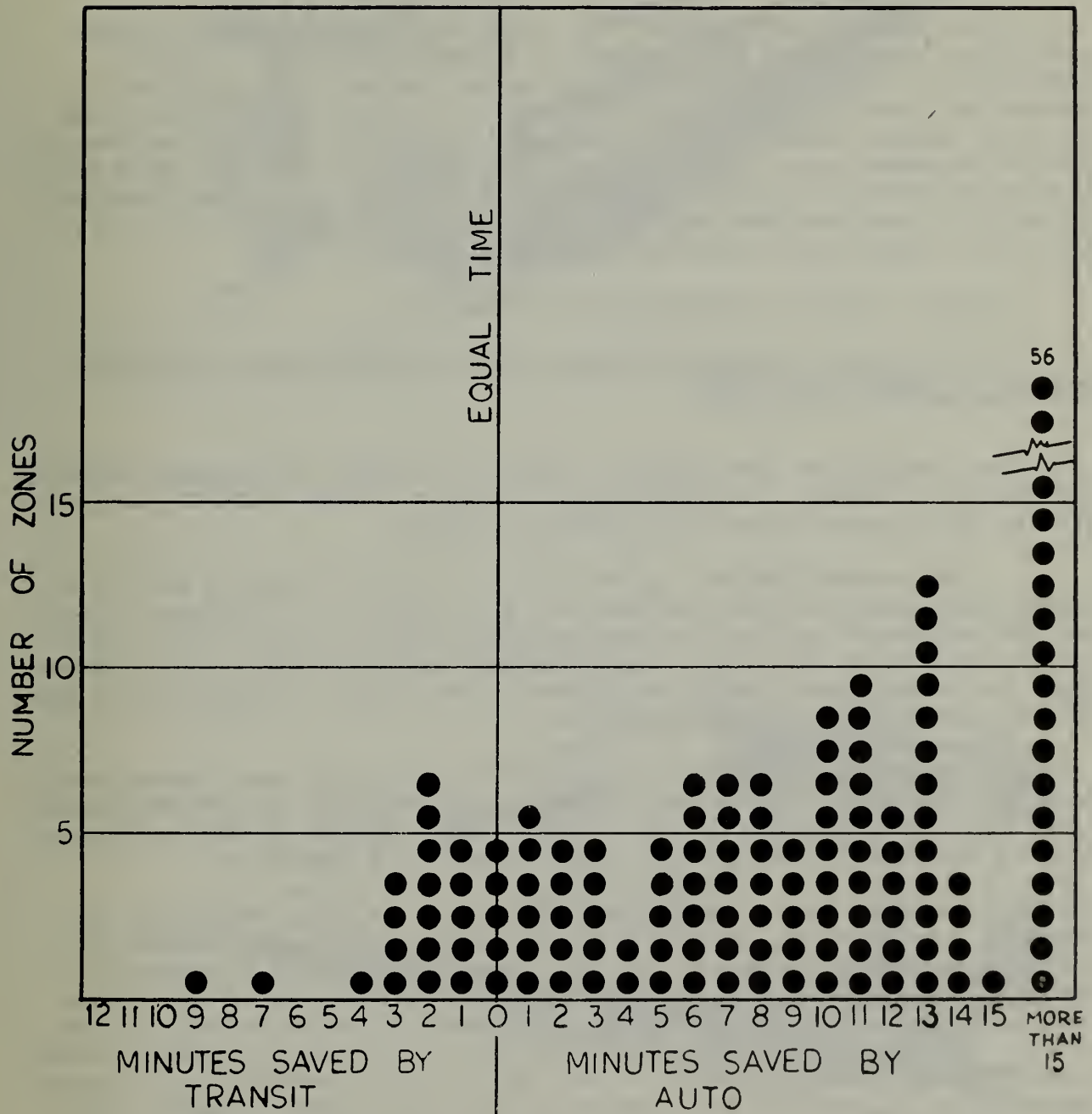
TO TRANSIT PATRONS: We need to learn about your travel habits to plan improved transit service. Will you kindly give a minute or two to answer the following questions about the trip you are now taking. Thanks for your help.

1. I got on this vehicle at _____
(STREET INTERSECTION) (CITY)
2. I am getting off this vehicle at _____
(STREET INTERSECTION) (CITY)
3. I started this trip from _____ Home: ☐ Yes ☐ No
(ADDRESS OR STREET INTERSECTION) (CITY)
4. I am going to _____ Home: ☐ Yes ☐ No
(ADDRESS OR STREET INTERSECTION) (CITY)
5. To reach this vehicle I used the following means:
☐ Walked ☐ Bus or Trolley Coach ☐ Streetcar or Cable Car ☐ Drove Auto ☐ Auto Passenger ☐ Other
6. After leaving this vehicle I will use the following means to complete my trip:
☐ Walk ☐ Bus or Trolley Coach ☐ Streetcar or Cable Car ☐ Drive Auto ☐ Auto Passenger ☐ Other
7. The purpose of my ROUND TRIP is:
☐ Work ☐ Shopping ☐ Personal Business ☐ Social-Recreational ☐ School ☐ Other
8. Check the number of cars in your household:
☐ 0 cars ☐ 1 car ☐ 2 cars ☐ More than 2 cars
9. Was one of these cars available to you for this trip? ☐ Yes ☐ No

IF YOU TRANSFER ON THIS TRIP PLEASE DO NOT FILL OUT A SECOND CARD.

After filling out this card please drop in box at exit door or return to operator. If carried from vehicle please drop in any mail box. No postage required.

COMPARATIVE TRAVEL TIMES TO DOWNTOWN - 172 SAN FRANCISCO ZONES



The truly startling capability of such a schedule--or even a somewhat slower one--to meet the criteria put forward by motorists is shown on the chart above. The city was divided into 172 areas of 5,000 people each. To the left of the vertical line is the number of areas which now can be reached from downtown by the present Municipal Railway service in less time--door to door--than it takes to make the trip by auto. This amounts to only 15% of the areas. By moving the line to the right along the "one minute service improvement scale" it is apparent that 20-minute service would meet the stated demands of 70% of those who might now be using their automobiles to make the same trip.

III: TODAY'S MUNI AND FAST TRANSIT UNDER THE COMPREHENSIVE TRANSIT PLAN

It has long been established that, given the prohibitive cost of constructing a subway under every street, fast transit requires, largely, a combination of fast vehicles running in subways, whose lines are filled, drained and interlocked by fast bus service. Starting from this point, the CTP study engaged Kaiser Engineers to report on the ways in which the Muni's present equipment could, on the one hand, be coordinated with the BARTD facilities which are under construction and, on the other, be fitted into the rest of the CTP within San Francisco in a manner which would make public transit in the city competitive with BARTD.

In brief, Kaiser's conclusions were these:

That our present transit fleet can neither be coordinated with BARTD nor can it compete with BARTD.

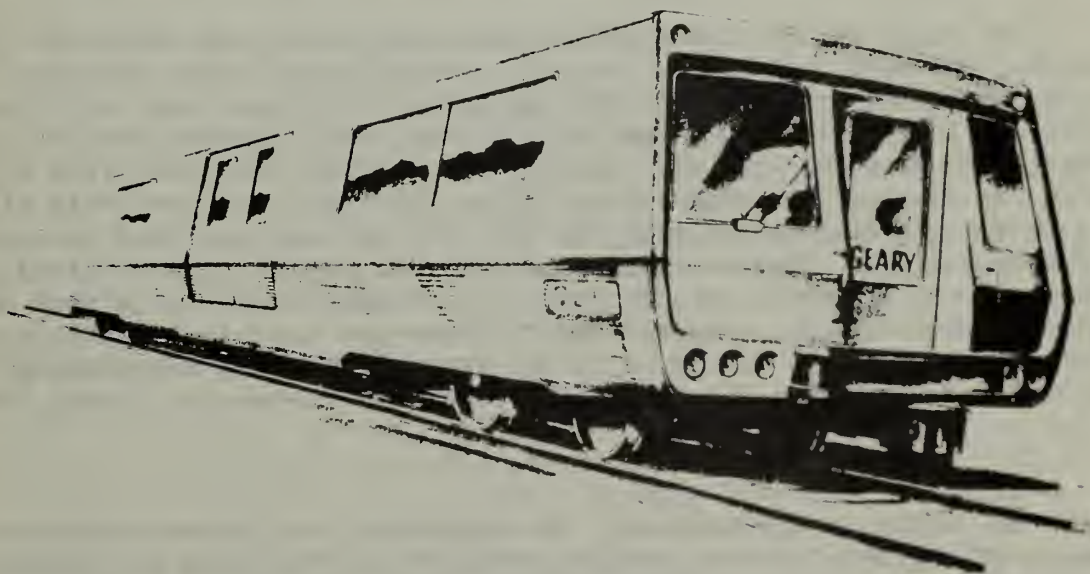
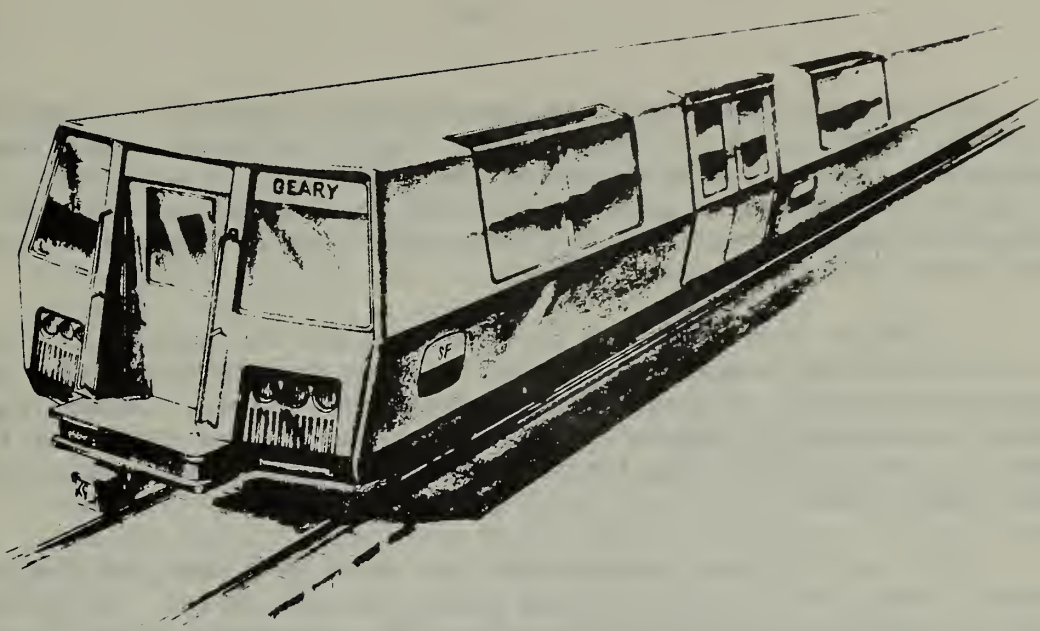
Their conclusions were based on criteria of design, of passenger capacity and power, of 'headway' or scheduling of surface-to-subway vehicles, and, finally, on the mere age of the equipment involved.

The reason that most of the present vehicles cannot be used in a fast-transit system is that they were not built for it. For instance, a subway car depends not only on its speed en route, which is relatively a minor factor, but also on practically instantaneous loading at stops--people do not climb into subway cars, one by one, through narrow doors, but step into them, four or five abreast, through wide ones.

Our present streetcar fleet could be rebuilt to load level through wide doors at a relatively modest cost. However, in comparison with modern subway cars, they could, at their ultimate, move no more than 60% as many passengers per hour as slightly larger modern rapid-transit cars could move.

The seductive idea of having streetcar lines run along the surface and then into subways brings up against the hard fact that a subway depends on precisely predictable headways, and that these headways will be hopelessly snarled by unavoidable surface delays. To put it another way, even the convenience of passengers at the end of these lines, who would be able to ride without transfer, is cancelled out by the fact that their trip downtown would be unavoidably delayed by having to wait for intricate rescheduling, stopping and starting, of the mainline subway which they would enter at Market Street --it would be twice as long. In addition, of course, the convenience of a relatively few passengers would inevitably become the inconvenience of others, far greater in number.

The beautifully articulated European streetcars, in three sections, 90 feet long, which snake swiftly through the streets and then slide into tunnels in areas of exceptionally heavy traffic, were also studied. It was found that these units attained their impressive speeds by acceleration in overground areas where traffic conditions bear no relation to our own: America does not move on bicycles. The articulated cars have the same difficulties as streetcars: street loading, often dangerous and frequently delayed.



CONCEPTS - SAN FRANCISCO RAPID TRANSIT VEHICLE

Monorail was also thoroughly investigated. Some of the criticisms of it in the past have been disingenuous. Other criticisms cannot easily be overcome: its difficulty on turns, its difficulty in switching. However, in subway, it cannot be considered, since it would demand the additional cost of overhead structure within the subway, while "supported" trains would make no such demands.

It appears then that both the ~~economics~~ and the amenities of the situation --for, to remove people from private vehicles to public, we must offer transportation not only as fast, but as comfortable--decree a modern rapid transit subway car, slightly larger (140 passengers as against 100) than the present Muni car, and slightly smaller than the BARTD car, which is too wide for the Twin Peaks Tunnel.

A fast and frequent subway must be served by a fast and frequent bus system. What are the capabilities of our present buses? The Kaiser study found our gasoline and Diesel buses entirely outmoded: noisy, noisome, too small in passenger capacity and incapable of handling the San Francisco terrain.

Our trolley buses, on the other hand--save only for the net of overhead wires and supports which has brought continuous and bitter complaint from San Francisco residents--are superb vehicles. Their top speed is in the range of 70 miles an hour, and they can brake down to 5 mph after all power is lost. If and when the rechargeable massive batteries now available for automobiles could be enlarged to provide a day's fast running, the trolley buses could be our only feeder transit. Until that day, many of them will remain in areas which liquid fuel buses cannot manage and new and larger ones will be bought.

The buses in the replacement fleet suggested by the study will be larger, faster, and more comfortable than the present buses, with automatic transmission, overdrive and power systems specifically adjusted for our hills. In addition, they will be equipped with various sophisticated devices for split-minute coordination with the subways. 'Telemetry' will keep them in touch with the computerized dispatching office; photoelectric eyes will allow them to change traffic lights ahead of them from red to green when necessary to make connections. Their loading problems will practically be solved, when they serve as feeder buses, by the weekly transit cards which need only be shown to the driver. (Indeed, there is some possibility of entry by the wide rear doors, a pay as you leave by the front door system for passengers who intend to travel less far, or farther, than the connecting subway line.)

* * *

The Kaiser study concludes, after studying our present equipment from many angles, that there is "no intermediate step" between our present outmoded transit system and full modernization for the fast transit system for the city that the CTP plans.

However, they point out that there is no substantial additional cost to full modernization of the system by almost total replacement of the present fleet with high speed, high capacity, comfortable vehicles, for the present fleet is almost entirely worn out. Even if a fast-transit plan did not exist, they would soon have to be replaced.

Kaiser's summarization of the present state of the equipment is that

"The Muni's present facilities...are the end result of a gradual absorption and accumulation of numerous private and municipal transportation lines dating back to the 1870's. The last major improvement program, principally for motor coach facilities, was conducted in 1950.

"As a result, the fleet of surface transportation vehicles has reached or is rapidly approaching the end of (its)useful and most economic life. The shops and garages (which) provide the heavy maintenance service required by such antiquated vehicles are outmoded and inadequate, and the Twin Peaks and Sunset tunnels, their stations and trackage, are in dire need of reconditioning, renovating or rebuilding.

"There is no apparent adequate means or method to alleviate this obsolescent condition of physical plant and equipment short of total vehicle replacement and reconstruction of shop and garage facilities, and the implementation of modern transit concepts for the City."

Their analysis of the Muni's fleet of 1028 vehicles is revealing:

Streetcars

Total number	<u>105</u>
Built in 1946 - 20 years old	70
Built in 1948 - 18 years old	10
Built in 1952 - 14 years old	25

They warn of an impending increase in motor replacements (which must be built in the Muni's own shops at excessive cost) and note that there is "a serious shortage of streetcars in the active fleet. Even one vehicle collision could place Muni in the position of having to reduce scheduled streetcar service due to lack of equipment."

Of the 339 trolley coaches, 21 have to be stored to be "cannibalized" for spare parts unavailable anywhere else. Most of the fleet was built in 1949, and 10 have been built since 1952. Seventy-five are four years or more over-age for San Francisco conditions and the remainder have from one to four years to go. In other words, the entire trolley coach fleet is either over-age or within four years of attaining its maximum serviceable age of 18 years.

Twenty-four of the 524 buses are held for cannibalization (stripping for spare parts for other coaches, since no item of San Francisco equipment is still being manufactured anywhere) and the maximum life of the 70 newest members of the fleet is eight years.

EVALUATION OF MUNI REVENUE VEHICLES

Year	Make	Seats	Serial Numbers	No. of Vehicles	Condition (a) Rating (%)	Age (b) Rating (%)	Mileage (c) Rating (%)	Adequacy (d) Index	Estimated Future Life (Yrs.)
A. Motor Coaches									
1960	Mack	48	2600 - 2669	70	86	64	58	69	8
1959	Mack	48	2500 - 2569	70	83	57	53	64	7
1958	Mack	48	2400 - 2469	70	80	50	42	57	6
1957	Mack	48	2300 - 2369	70	85	43	37	55	5
1955	Mack	48	2100 - 2199	99	82	29	32	48	3
1956	Mack	48	2200 - 2269	70	74	36	31	47	4
1948	Large Whites	44	0228 - 0449	48	56	0	7	21	0
1939	Small Whites	32	060 - 062	3	52	0	0	17	0
B. Trolley Coaches									
1951	Marmon-Harrington	48	790 - 849	60	96	22	35	51	3
1952	St. Louis Car Co.	48	850 - 889	40	90	28	5	41	4
1950	Marmon-Harrington	48	740 - 789	50	91	17	14	41	2
1949	Twin Coach	44	570 - 659	89	86	11	24	40	1
1949	Marmon-Harrington	44	660 - 739	80	89	11	15	38	1
1949	Marmon-Harrington	44	550 - 569	20	87	11	8	35	1
C. Streetcars									
1952	St. Louis Car Co.	59	1016 - 1040	25	94	57	(e)	76	16
1948	St. Louis Car Co.	60	1006 - 1015	10	90	43	(e)	67	12
1946	St. Louis Car Co.	53	1101 - 1170	70	85	37	(e)	61	10
D. Cable Cars									
1893	Mahoney Bros.	29	501 - 527	27	95	(f)	(e)	95	(f)
1907	Hammond Co.; Hammond-Holman; California Cable	34	49 - 60	12	93	(f)	(e)	93	(f)
				983					

TOTAL ACTIVE VEHICLES

Notes: (a) Indication of existing body, mechanical and electrical condition as compared to completely reconditioned vehicle.
 (b) Percent of life remaining based on American Transit Association statistics.
 (c) Percent of mileage remaining based on A. T. A. age remaining and San Francisco average annual fleet mileage.
 (d) Indication of remaining value based on condition, age and mileage where possible on equal weight basis.
 (e) No mileage statistics available.
 (f) No A. T. A. standards available.

The cable car fleet of 39 is in good condition because of a continual rebuilding program of a type of car which was perfect for the limited purposes (fast transit on steep hills) it was built for 60-70 years ago and remains perfect for those purposes today.

The detailed analysis of the fleet is shown in table 1, opposite.

Commenting, Kaiser says:

"The three ratings on condition, age and mileage were then averaged together on an equal weight basis and a final adequacy index was determined. This index is a comparative indication of the remaining value of each fleet.

"It should be noted that there was always some remaining value in any type of equipment despite hard usage, high mileage or excessive age. Since all this equipment is in daily service on Muni lines, it has some functional value to the system for its day-to-day operation.

"Even with the use of these techniques, age is still the most important factor in the life of any piece of equipment. Almost the entire transit industry replaces its equipment on the basis of age rather than on other factors. This study confirmed that even using other factors not necessarily directly related to age, the resulting statistics will generally follow the age factor...."

This analysis does not suggest that the present fleet, except for the cable cars, has no utility. The Comprehensive Transit Plan will not be built overnight. Most of them will be hauling passengers until the end of their useful lives, which will just about coincide with the 1972 completion date of the first phase of the Comprehensive Transit Plan. Some may be used beyond that date on intersecting lines whose gradients will allow them to operate efficiently. However, each one, as it wears out, will be replaced with completely modern equipment. (See vehicle replacement program, page 12-A.)

The study found that many of the other Muni facilities were also very old and in poor condition.

Muni trackage of 40 miles dates back as far as 1914. Half of it will have to be replaced within five years.

One of our 9 Muni repair shops was built in 1886 -- 80 years ago. Four more are 60 years old, one is 53, another 50; the two newest were built in 1949 and 1950. Kaiser rates two of the shops "excellent", two "good", one "fair", and the other four "poor."

HOW THE MUNI GOT THIS WAY

The extreme age of the Muni equipment is extraordinary, and requires some comment. No going business would find itself with an immense re-equipment

FIRST PHASE VEHICLE REPLACEMENT PROGRAM
ANNUAL COST 1967 - 1972

<u>Year</u>	<u>Equipment Type</u>	<u>No. Units</u>	<u>Unit Price*</u>	<u>Total</u>
1967	Motor Coaches	140	\$ 33,300	\$ 4,660,000
1968	Motor Coaches	120	35,000	4,200,000
1969	Motor Coaches	125	36,600	4,570,000
1970	Motor Coaches	125	38,400	4,800,000
1971	Motor Coaches	100	40,200	4,020,000
	** Rail Cars	50	148,000	7,400,000
1972	Motor Coaches	50	42,200	2,110,000
	Trolley Coaches	150	42,200	6,330,000
	** Rail Cars	<u>25</u>	156,000	<u>3,900,000</u>
	TOTAL	660 MC		\$41,990,000
		150 TC		
		75 RC		

* Estimate based on escalated cost over the years 1967-1972 from the 1966 base price of units, with escalation compounded at 5 percent annually.

** Includes requirement of 75 new rail cars for initiation of rapid transit service in Market Street - Twin Peaks subway.

problem all at one time--for one thing, if it did, it would mean that the business had foregone the advantages of every new development in its line of work over long periods of time and would long ago have found itself at a substantial competitive disadvantage. (This, of course, has been the case with the Muni: it has given away steadily to its heavily subsidized competitor, the private automobile.)

This curious situation comes about because of the City Charter, which permits no more than \$125,000 a year in capital improvements for the Railway. Each time any substantial improvement must be made, a bond issue is required. Muni management had avoided this problem since 1947, when the last bond issue (for \$20,000,000) was passed to buy trolley cars, trolley coaches and buses, by leasing equipment.

For a time from the mid-40's to the 1960's it was possible to enter into reasonably advantageous lease arrangements. Since that date, however, producers of the equipment used have dwindled to the point where General Motors is the only one left in the field, and General Motors states that it has no interest in leases.

The only way to obtain new equipment on lease today would be to set up a corporation to buy equipment and lease it to the Muni. In the case of the purchases now contemplated, this would entail the Muni paying the manufacturer's excise tax of 10% on the buses and paying also a rate of interest high enough to give the lessor his profit. The additional cost of the tax alone would be about \$3,000,000, and the interest rate would have to be in the range of 7% instead of 4%, an additional \$10 million in cost over the payout period. (See page 12-A.)

THE COMPREHENSIVE TRANSIT PLAN: THE 6 MAJOR HIGH-SPEED SUBWAYS AND BUS LINES



#1, #4 and #6 WILL BE FINANCED BY PROPOSITION 'B'. #5 IS BEING BUILT BY BARTD. #5 WILL QUALIFY THE MUNI FOR FEDERAL AID TO BUILD #2 and #3. PROPOSITION 'B' WILL QUALIFY THE MUNI FOR FEDERAL AID TO BUILD #2 and #3.

IV: PROPOSITION B--FAST TRANSIT NOW!

The Simpson and Curtin Comprehensive Transit Plan for San Francisco is designed to be built in two steps.

The first step--and the essential pre-condition for the second step--is the plan of fast transit for the city drawn up as Proposition B on the November election ballot.

Proposition B is designed to give 75% of the people of the city all the benefits they will enjoy in the final phase of the Comprehensive Transit Plan --much more comfortable and tremendously faster service to their destinations, even at rush hours. It is designed to give the rest of the city most of the benefits they will enjoy under the final phases of the CTP, in the shape of much more comfortable and significantly faster travel to their destinations, even at rush hours.

The layout of the plan is based on the opportunities given San Francisco by the present state of its Municipal Railway--overage equipment which will have to be replaced within a very few years in any case, and the coming of the BARTD's Market-Mission and Market-Twin Peaks subway routes, due by 1971. (BARTD's plan for a Twin Peaks subway as the first branch line to be built in San Francisco was, of course, dictated by the fact that the Twin Peaks tunnel, suitable for a subway, already existed.)

These are the facilities Proposition B will provide to complement the Market-Mission subway, built with San Francisco's contribution to BARTD, and this is the service they will provide.

Mission Mainline, BARTD's subway, out Mission to Daly City, will be crossed and served up-and-down the line by the fast feeder buses that will guarantee 170,000 people 20-minute maximum rush-hour travel time to their ultimate destinations.

Twin Peaks Mainline, BARTD's subway up Market Street has two levels, with the top level to be used by the Muni. The Muni subway continues straight up Market, through the Twin Peaks Tunnel and out to 19th and Holloway, and has a running time for 13.8 minutes from the end of the line. It will give the 82,000 people in its own area and half of the 90,000 people who will finally be served by a Sunset subway the ultimate 20-minute service at the furthest point on the feeder bus line that the CTP is set up to give. Most of the cost of this line was included in the BARTD bond issue.

Sunset Tunnel Improvement. The Sunset Tunnel will be paved to allow its use both by buses and streetcars. At present, Haight Street, because of the Buena Vista Hill barrier, carries five bus lines when it need carry only one. Paving the tunnel will allow four of the buses to speed their time downtown considerably. The trip from the Sunset to downtown will be shortened not only by this device, but also by relieving the district of traffic competition from the half of its passengers who will use the Twin Peaks subway, but also by lightened traffic on Oak Street, much of which is now generated in the area the Twin Peaks line will serve. Present running-time in the area is short for the system--a scheduled 21-30 minutes--and it will improve further.

The Marina Mainline. The distance to the Marina is too short for subway. It will, therefore, be served by new fast buses on more frequent schedules on the present express routes through the Broadway Tunnel. The running time should be about 15 minutes from downtown for the 90,000 people served, all of whom are within walking distance of the buses.

The Bayview-Hunters Point Mainline. Here again, a substantial part of the area is too close to downtown for a subway to be necessary. Additionally, the 1965 destination survey discovered that the typical movement in this area tends to be short trips to the industrial district and crosstown toward Mission. A great many of the people in the area will also take fast feeder buses up Silver and Geneva to travel downtown on the Mission subway mainline. The area will, then, be best served by express buses on the Hunters Point and James Lick freeways. At the critical times of day, the load on these freeways will be much lighter than it is presently (James Lick Freeway) and lighter than what has been projected (Hunters Point Freeway) because of the very large number of Peninsula commuters who will park their cars at the county line and use the Mission subway. In the future, it is expected that a West Bay transit system will be built by Santa Clara and San Mateo counties up the Bay coastline. Consideration of revenue will dictate its extension to downtown San Francisco along this corridor, which will provide subway service for this area when the freeways fill up. In any case, a present population of 66,500, all within walking distance, will have fast service downtown.

In sum, nearly 75% of San Francisco's 750,000 people will enjoy, under Proposition B, the ultimate benefits that they will receive under the Comprehensive Transit Plan. The extent to which the city will be benefited is shown in table II, below.

POPULATION SERVED BY FAST TRANSIT UNDER PROPOSITION B

<u>Facility</u>	<u>Population Served</u>			<u>% of City Population Served</u>
	<u>Within Walking Distance</u>	<u>With Feeder Bus Access</u>	<u>Total</u>	
Bayview Mainline	66,500	---	66,500	8.8
Mission Mainline**	28,825	278,870	307,695	26.4
Twin Peaks Mainline*	33,715	92,514*	126,229	16.6
Central Business Area	23,789	57,764	81,553	10.8
Marina Mainline	<u>90,000</u>	<u>---</u>	<u>90,000</u>	<u>11.8</u>
TOTAL*	<u>212,829</u>	<u>429,148</u>	<u>671,977</u>	<u>74.4</u>

* Includes 44,000 people who will eventually be served by Sunset Mainline.

**Includes 3,325 persons within walking distance, 104,675 with feeder bus access and a total of 108,000 persons served in San Mateo County.

The benefits that will be conferred by Proposition B will not, of course, be confined only to people who are making trips to and from the downtown area. They will be enjoyed equally in the neighborhoods--fast subway service entails fast service on the buses which must feed the subways. Both across the lines and up and down the lines, the new equipment will be running faster on the old cross-town lines, the old up and downtown lines, and on new lines added to the system.

These buses, as described earlier, will not only be faster and more comfortable than the old equipment but will be equipped with advanced telemetry to assure that they meet, instead of just missing, subways and intersecting buslines. In addition they will have the photoelectric devices which will enable them to turn traffic lights ahead of them from red to green. This device will be of particular use on the Geary line into the Richmond, where its use will permit great speeds on the long blocks all the way from 45th to Van Ness. The Geary line will also benefit--as will all others which come downtown--from considerably lessened traffic which will result from the existence of the Market-Mission and the Twin Peaks subways, for Market Street and downtown congestion is the primary source of slow traffic in the City.

The benefits of rapid transit, as pointed out earlier, extend as much to those who don't use it as to those who do. Clearing the downtown area--and the freeways leading to it--of the thousands of cars whose drivers use them only because of their exasperation with public transit, will add substantially to the ease of transportation for people who must use their cars and for deliveries by truck. These benefits, while obviously great, cannot be easily measured.

Cable Car Extensions. As noted earlier, cable cars are the swiftest possible transit for the hilly areas they serve. The CTP proposes to extend the California Line to Ferry Park and the Powell Line to Fisherman's Wharf. The Ferry extension assumes that before the construction of a transit tube from Marin, there will be a resumption of some form of service by water to Marin County. It will also drain and fill the Greyhound buses which now park at the Ferry Building. The Fisherman's Wharf extension is primarily to move the turntable off the street. Any moderate increase in cable car facilities can be justified by the great tourist revenue they bring the city.

In detail, Proposition B funds will be invested as follows. Each expenditure has been marked as "replacement" (REP) or "expansion" (EXP). Items marked as replacements are those which represent expenditures that would have to be made to maintain the present level of Municipal Railway service within the next 20 years whether the railway system were converted to fast transit or not and those that would have to be made to meet commitments under the required coordination with BARTD. Those which extend the present system are described as "expansion" investments.

HOW PROPOSITION 'B' FUNDS WILL BE ALLOCATED

The total amount of bonds authorized by Proposition 'B' is \$96,500,000. (Note: Authorization does not necessarily mean spending -- each item in the program must be approved by the Public Utilities Commission, the Utilities Manager, the Mayor, the Controller, and the Board of Supervisors before the bonds are sold for the required amount).

The allowance for contingencies and inflation is \$14,166,000. Actual projected costs of the bond issue, therefore, are \$82,334,000.

Allocation is as follows:

FOR NEW EQUIPMENT AND REHABILITATION: \$55,950,000 -- 68%

FOR EXTENSIONS AND THE FIRST PHASE OF
THE COMPREHENSIVE TRANSIT PLAN: 26,384,000 -- 32%

DETAILED BREAKDOWN (inflation factor omitted)

RE-EQUIPPING AND REHABILITATION:

810 new motor vehicles (on tires)	\$30,690,000
Replacement of 105 streetcars with new rail vehicles	11,300,000
Renovation of the Twin Peaks Tunnel BARTD's part is to build this as subway; San Francisco must replace the tracks, replace the lighting, reline the tunnel, install new signal system, and renovate the Forest Hills Station	4,740,000
5 new cable cars	150,000
St. Francis Circle station must be rebuilt	500,000
Rehabilitation of existing shops and garages	4,365,000
Cable car trackage & barns	1,735,000
Fare collection equipment, necessary to speed up service	1,500,000
Radio and telemetry equipment, necessary for maximum coordination of new rail and bus equipment	970,000

Total for RE-EQUIPPING 55,950,000
and REHABILITATION

EXTENDING THE MUNI AS PART OF THE COMPREHENSIVE TRANSIT SYSTEM

Twin Peaks Tunnel extension to 19th Avenue and Holloway: for the digging only	\$10,870,000
for the two stations, Stonestown and S.F. State College	4,072,000
Engineering costs	1,543,000
Cable car extensions	500,000
Underground rail storage yard and shops in area of S.F. State College	6,840,000
Interim improvements to the Sunset Tunnel	2,559,000
<u>TOTAL FOR EXTENSION</u>	<u>26,384,000</u>

Note: The total of \$96.5 million does not include the optional air-conditioning equipment for rapid transit cars and surface vehicles; this would add another \$4,280,000 to the first phase program. Air conditioning is not being urged at this stage of the program for two reasons: (1) the climate of San Francisco makes doubtful any need for air conditioning, and (2) motor coaches would not be able to operate on the steep grades in this city with air conditioning, as they are presently designed. The buses proposed for use have filtered forced air circulation.

The timing of the expenditures, for Propostion B in general and for the equipment in detail, follows.

PROGRAM OF CAPITAL EXPENDITURES
FIRST PHASE TRANSIT MODERNIZATION PROGRAM
(Costs include escalation factor stated
separately in breakdown of cost above)

<u>Item</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u> (\$000 omitted)	<u>1971</u>	<u>1972</u>	<u>Total</u>
Number of New Buses	140	120	125	125	100	200*	
Number of New Cars					50	25	
Transit Vehicles							
Rapid Transit Cars	--	--	--	--	\$7,400	\$3,900	\$11,300
Motor Coaches	\$4,660	\$4,200	\$4,570	\$4,800	4,020	2,110	\$24,360
Trolley Coaches	--	--	--	--	--	6,330	\$ 6,330
Cable Car Program	700	1,000	900	200	--	--	\$ 2,800
Twin Peaks Rapid Extension	--	--	2,300	7,000	8,000	6,300	\$23,600
Sunset Tunnel	600	3,000	--	--	--	--	\$ 3,600
Twin Peaks Tunnel Modernization	--	740	2,000	2,000	--	--	\$ 4,740
Yards and Shops (including land acquisition)	2,000	5,000	5,700	3,600	1,000	--	\$17,300
Fare Collection Equipment	--	--	--	--	500	1,000	\$ 1,500
Radio-Telemetry	470	500	--	--	--	--	\$ 970
TOTAL	\$8,430	\$14,110	\$15,170	\$17,600	\$20,920	\$19,610	\$96,500
Optional - Air-Conditioning Equipment	\$ 590	\$ 530	\$ 580	\$ 610	\$ 770	\$ 1,200	\$ 4,280

*Includes 150 Trolley Coaches

The significance of timing of the expenditures is that by 1971, when the BARTD subway is completed, we must have a fast motor coach fleet to serve the two BARTD corridors, must have the Twin Peaks Tunnel modernized, and the subway extension to 19th and Holloway ready to connect with BARTD.

Cost and the tax rate

Using an interest figure of 4%, somewhat higher than the City usually pays for similar issues, Proposition B's start of the Comprehensive Transit Plan is the equivalent of 36.27¢ on the tax rate. Of this 36.27¢, it is calculated that 23.13¢ represents the amount that would have to be spent for alternative improvements to existing Municipal Railway facilities in any case, leaving 13.14¢ as the apparent net cost of a program that will prepare our system for fruitful coordination with BARTD and effective competition with private transit. This 13.14¢ effect is, of course, tendentious in the extreme: with the often-surmised effect of uncompetitive slow transit on the population and general economy of the city, it is by no means unreasonable to conclude that the fully developed fast transit system represented by the Comprehensive Transit Plan might encourage population and business growth so much as to leave no net cost whatever to the issue over the 20-year period during which the bonds are retired (see schedule).

It should also be noted that modernized vehicles and repair equipment will produce, in themselves, operating economies and that the greater safety of sub-surface transit must cut into the Municipal Railway's very high (8.5¢ of every dollar of revenue) accident-claim cost.

Stating that a bond issue will "be the equivalent of 36.27¢ on the tax rate" does not, of course, mean that 36.27¢ will be added to one's tax bill to service the bonds. City Controller Nathan B. Cooper notes that the bonds will be serviced out of the city's Capital Improvements Fund over their 20-year life (see table). The Capital Improvements Fund is itself funded by the 1¢ of sales tax revenue the State collects for the counties--hence property owners will have no part of the cost added to their bills.

SAN FRANCISCO MUNICIPAL RAILWAY
SCHEDULE OF DEBT SERVICE REQUIREMENTS
1966 MUNICIPAL RAILWAY BONDS

FISCAL YEAR	\$8,430,000 DATED 4-1-67	\$14,440,000 DATED 4-1-68	\$15,470,000 DATED 4-1-69	\$17,600,000 DATED 4-1-70	\$20,920,000 DATED 4-1-71	\$19,640,000 DATED 4-1-72	\$96,500,000 TOTAL REDEMPTION	INTEREST @ 3% - 4%	TOTAL DEBT SERVICE
1967-68	\$ 925,000	\$ 1,285,000	\$ 1,385,000	\$ 1,545,000	\$ 1,705,000	\$ 1,475,000	\$ 925,000	\$ 290,600	\$ 1,215,600
69	920,000	1,285,000	1,385,000	1,540,000	1,705,000	1,475,000	2,205,000	795,900	3,000,900
70	920,000	1,285,000	1,385,000	1,540,000	1,705,000	1,475,000	3,590,000	1,293,450	4,883,450
71	920,000	1,285,000	1,385,000	1,540,000	1,705,000	1,475,000	5,135,000	1,825,050	6,960,050
72	915,000	1,285,000	1,385,000	1,540,000	1,705,000	1,475,000	6,830,000	2,442,350	9,272,350
73	915,000	1,285,000	1,385,000	1,540,000	1,705,000	1,475,000	8,305,000	2,965,450	11,270,450
74	915,000	1,285,000	1,385,000	1,540,000	1,705,000	1,475,000	8,300,000	2,668,100	10,968,100
75	250,000	1,285,000	1,375,000	1,540,000	1,700,000	1,470,000	7,625,000	2,370,900	9,995,900
76	250,000	685,000	1,375,000	1,540,000	1,705,000	1,470,000	7,025,000	2,094,000	9,119,000
77	250,000	680,000	725,000	1,540,000	1,700,000	1,470,000	6,365,000	1,835,100	8,200,100
78	250,000	680,000	725,000	855,000	1,695,000	1,470,000	5,675,000	1,596,100	7,271,100
79	250,000	680,000	725,000	855,000	1,125,000	1,470,000	5,105,000	1,377,800	6,482,800
80	250,000	680,000	725,000	855,000	1,125,000	1,170,000	4,805,000	1,176,600	5,981,600
81	250,000	680,000	725,000	850,000	1,125,000	1,170,000	4,800,000	984,400	5,784,400
82	250,000	680,000	725,000	850,000	1,125,000	1,170,000	4,550,000	792,400	5,342,400
83		680,000	725,000	850,000	1,125,000	1,170,000	4,550,000	600,400	5,150,400
84			725,000	850,000	1,125,000	1,165,000	3,865,000	418,400	4,283,400
85				850,000	1,125,000	1,165,000	3,140,000	263,800	3,403,800
86					1,125,000	1,165,000	2,290,000	138,200	2,428,200
87					1,125,000	1,165,000	1,165,000	46,600	1,211,600
	\$8,430,000	\$14,440,000	\$15,470,000	\$17,600,000	\$20,920,000	\$19,640,000	\$96,500,000	\$25,975,600	\$122,475,600

V: THE COMPREHENSIVE TRANSIT PLAN AND PROPOSITION B

It would be impossible for San Francisco itself, at this time, to finance the Comprehensive Transit Plan; it would also be undesirable, unnecessary and unfair for the City to do so either now or at any future date.

These paradoxes are apparent, not real. Their solution rests upon the assumption that there is a prodigious reservoir of Federal funds, already collected in the Bay Area through the medium of the gasoline tax, which Congress, in the normal course of its consideration of America's urban problems--a consideration which has become much more serious since Court decisions have forced congressional redistricting to allow city residents a fairer share of the representation in Congress--may well allocate to rapid transit. We got some idea of the size of that reservoir last spring when statements were made that San Francisco would "lose" over \$200,000,000 of funds "already set aside" for the building of freeways here.

Now, it is not often recognized that building a subway accomplishes exactly the same purpose as building a freeway. The subway removes enough surface traffic to lighten the load on existing freeways just as if another freeway had been built. There is, then, no real contradiction or competition between freeways and subways.

Congress has recognized this by the passage and preliminary funding of the Urban Mass Transportation Act, which now stands at \$500,000,000 with certain restrictions as to use by the various states (at present no more than 12-1/2% of the funds may be spent in any one State; however, unexpended balances revert to the fund; an active program may take this 12-1/2% year after year.) It is felt that these restrictions may soon be lifted or adjusted so that areas which are ready now with mass transit plans may draw more now.

San Francisco does not expect any competition for these funds from BARTD, for the obvious reason that San Francisco is part of BARTD, and that it is a matter of small concern whether the City or BARTD would build the lines contemplated in the CTP: Nowhere in the BARTD area could more people be served by shorter lines.

The Comprehensive Transit Plan proposed by Simpson and Curtin would cost \$392,000,000. The first phases of the Plan laid out in Proposition B--the re-equipment of the Muni dictated by the present deplorable state of the rolling stock, the extensions of lines dictated by such already existing facilities as the Twin Peaks tunnel--would amount to an investment of \$96.5 million, as discussed earlier.

While the expenditure of \$96.5 million would only be a start on the Comprehensive Transit Plan, the CTP cannot be built unless these bonds are authorized at the November 8 election, for they are the earnest money necessary to qualify us under the Urban Mass Transit Act for funds under some matching formula that might finally be expected to go as high as the 90% Federal contribution now available to freeways.

GEARY RAPID AT PARK PRESIDIO

SIMPSON & CURTIN - TRANSPORTATION ENGINEERS

SAN FRANCISCO - PHILADELPHIA



The Comprehensive Transit Plan includes, in addition to the Market-Mission and Twin Peaks mainlines and the Bayview-Hunters Point and Marina mainlines described above, the Sunset and Richmond mainlines.

Sunset Mainline. The Market Street subway upper level will branch off Market at Duboce to run in subway through a Sunset tunnel. (The present tunnel would become a vehicular tunnel. Its grade is such, compared with the Market Street subway, that rapid transit operation requires a new bore on a lower level for efficient operation) to 19th and Irving, with a possible extension to 33rd and Taraval if the character of the neighborhood changes from single-family homes to provide a denser population to serve. Running time will be 12.6 minutes as against a present time of 21-30 minutes. The total riding time to a destination will be less than 20 minutes for the 89,642 people served.

Richmond Mainline. Straight out Geary from Market and Montgomery to 45th Avenue. People served, 136,704 (not counting the Marin commuter potential who would strike through the Presidio on 14th to enter an underground garage at Park-Presidio and Geary. There they would get parking at rates competitive with downtown, included with a subway ticket). Running time from 45th, 13.8 minutes as against the present scheduled time of 26 minutes, which often stretches to 60 minutes at rush hours.

Three possibilities were studied for the Geary Mainline: full subway, buses in subway and a combination subway-elevated structure. The last and cheapest alternative is not seriously considered, for San Franciscans have consistently said they will not tolerate elevated railway structures. Such a structure on Geary would, in addition, destroy the possibility of lining Geary with handsome multiple-unit structures above stores in the business district from Presidio to 33rd Avenue. A busway would cost nearly as much as a rapid transit car subway but would have much higher maintenance cost over the years because of the problem of dissipating fumes. (This problem would also affect living conditions on the surface). Additionally, buses would have difficulty in maneuvering around each other at stops, thus vitiating the fast loading concept which is of the essence in a fast-transit operation. The fume problem could not be solved by using trolley buses, since they could have an even more difficult loading problem than gasoline or Diesel buses--no way has ever been found to allow them to pass one another without stopping and lowering the trolley.

The Geary and Sunset mainlines would increase the number of people within the City who could have 20-minute riding time as shown in the following table.

**POPULATION SERVED BY RAPID TRANSIT
COMPREHENSIVE TRANSIT PLAN FOR SAN FRANCISCO**

<u>Facility</u>	<u>Population Served</u>			<u>% of City Population Served</u>
	<u>Within Walking Distance</u>	<u>With Feeder Bus Access</u>	<u>Total</u>	
Bayview Mainline	66,500	---	66,500	8.8%
Mission Mainline	28,825	278,870	307,695	26.4
Twin Peaks Mainline	33,715	48,514	82,229	10.9
Sunset Mainline	29,294	60,348	89,642	11.9
Richmond Mainline	56,785	79,919	136,704	18.1
Central Business Area	23,789	57,764	81,553	10.8
Marina Mainline	<u>90,000</u>	<u>---</u>	<u>90,000</u>	<u>11.6</u>
TOTAL*	328,908	525,415	854,323	98.5
	<u><u> </u></u>	<u><u> </u></u>	<u><u> </u></u>	<u><u> </u></u>

* Includes 3,325 persons within walking distance, 104,675 with feeder bus access and a total of 108,000 persons served in San Mateo County.

Its cost would be:

<u>System Improvements</u>	<u>Study Only</u>	<u>Program Costs (In Millions)</u>	
		<u>First Phase</u>	<u>Projected</u>
Rapid Transit System:			
<u>Market Street-Twin Peaks Subway</u>			
Twin Peaks Subway Extension	-	\$23.60	-
Twin Peaks Tunnel Renovation	-	4.74	-
Fare ^C ollection Equipment	-	1.50	-
<u>Richmond Corridor</u>			
Busway Alternate I	\$197.40		
Subway Alternate II or	-	-	\$221.05
Subway-Aerial Alternate III	-	-	119.95
<u>Sunset Corridor</u>			
Existing Tunnel Busway			
Conversion	-	3.60	-
Subway	-	-	86.20
Surface Transportation Improvements:			
Vehicle Replacement Program	-	41.99	-
Shop and Garage Rehabilitation	-	17.30	-
Cable Car System Rehabilitation	-	2.80	-
Radio & Telemetry Control System	-	<u>0.97</u>	<u>-</u>
First Phase Program Cost		\$96.50	\$307.25 or \$206.15

VI: BENEFITS OF FAST TRANSIT FOR SAN FRANCISCO - TO SUM UP

Whenever a worker ceases to live in San Francisco it costs the economy of the City somewhat over \$30,000 a year.

Whenever a new worker fails to locate in San Francisco, it costs the economy of the City, in lost opportunity, \$30,000 a year.

Thus, the loss of only 1,000 wage earners (we lost about 2,000 between 1964 and 1965) means a loss of \$30,000,000 a year, over the years. Failure to gain 1,000 wage earners means the same amount in lost business opportunities each year, over the years.

The loss is a loss to downtown business. The loss is a loss to neighborhood business--to suppliers of food, shelter and other services in the neighborhoods where people live. The loss is a loss in new construction and new business as well. The loss finally results in a heavier tax burden on remaining property owners in depopulated neighborhoods and in the rest of the city.

These are the brute facts about loss of population and failure to gain population because traffic congestion and exasperatingly slow transit make people want to live elsewhere.

In human terms, there are many other things we lose or fail to gain because of slow rush hour transit. How much is an extra half-hour in the morning and evening worth? In a working world an hour gained is about 20% of your waking time at home. How much is arrival at home fresh, after an easy transit trip, worth? Conversely, how much is easier auto travel -- because of less-crowded streets and freeways -- worth?

How much is beautification -- the removal of miles of ugly overhead nets of wires -- worth?

Finally, how much is a city that is healthy, living and growing, instead of slowly decaying in its residential districts, worth? Imponderables often weigh more than things that can be exactly measured.

To return again to things that are measurable: No land will be taken from the tax rolls by Proposition B: Indeed a little will be added (Freeways take 40 acres of houses per mile). There will be sharp operating economies with new rolling stock and new facilities to handle it. With rapid transit in subway and new equipment above ground, the Muni's accident expense, which now stands at 8.5¢ per dollar of revenue, will decrease. Rapid transit is the safest form of transit.

